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CONFIDENTIAL

DOCUMENT SECTION

I.G. FARBENINDUSTRIE A.G., ABTEILUNG:
BEHRING WERKE A.D., LAHN, GERMANY



CONFIDENTIAL

COMBINED INTELLIGENCE OBJECTIVES
SUB-COMMITTEE

CONFIDENTIAL

I.G. FARBENINDUSTRIE - A.G.,
ABTEILUNG : BEHRING WERKE, MARBURG a.d.
LAHN, GERMANY.

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CIOS BLACK LIST ITEM - 24
MEDICAL

COMBINED INTELLIGENCE OBJECTIVES SUB-COMMITTEE
G-2 Division, SHAEF (Rear) APO 413

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I. ORGANIZATION OF BEHRINGWERKE, MARBURG

The Behringwerke was visited on April 7 and 8, 1945. This plant is the largest producer in Germany of therapeutic antisera, vaccines and related products. About one-half of its total production of biological materials were exported before the war. The Behringwerke was in full production until 30 March 1945 when electric current failed because of bomb damage to the Marburg power plant and lines. The Behringwerke itself was undamaged by aerial or ground attacks. The Marburg area was occupied by U.S. Army Forces on 26 March 1945.

The offices, laboratories, stables, and animal houses cover an area of 26 hectares (approximately 69 acres). Pasture land to the extent of about 50 acres is available nearby. Most of the buildings are of stone construction and are about 50 to 60 years old; von Behring's old laboratory is still in regular use. There are a number of recently constructed wooden buildings which are detached from the main group. One of these was used for the preparation of typhus vaccine from embryonated eggs. Several buildings located just outside the front gate were surrounded by a barbed wire barricade; these served as barracks for foreign workers.

The total number of people employed at the Behringwerke on 28 March 1944 was 744; of these 273 were foreigners who have now been released by the armed forces. Appendix I contains a list of the personnel classified as to type of occupation, nationality, and sex.

Nine persons who occupied positions of importance in the company were interviewed. These were: Dr. Albert DEMNITZ, Laboratory Director and Production Manager of Behringwerke; Prof. Dr. med. Hans SCHMIDT, Director, "Emil von Behring Institute for Experimental Therapy" which is connected with the Behringwerke; Dr. Richard HAAS, who supervises medical diagnostic work, and the manufacture of commercial diagnostic preparations as well as typhus vaccine; Prof. Dr. med. Richard BIELING, in charge of Virus Research; Dr. vet. ULENHAUT, Director of Veterinary Department; Dr. med. Lilly OELRICHES, who worked on problems and vaccines connected with virus and rickettsial diseases; Dr. SCHOLTZ; Dr. SONNENSCHEIN; and Mr. OLDENBURG. Drs. MAIER, POPPE, and

DRÄGER were not available for questioning. Dr. Haas was picked up by the CIC of our forces on 8 April 1945 because of his connection with the Waffen SS. A letter by Prof. Schmidt requesting his release is copied in Appendix II.

II. BIOLOGICAL PRODUCTS OF BEHRINGWERKE

A complete list of standard biological products of the Behringwerke is given in Appendix III. Brief descriptive notes accompany a number of the items in the list. A more complete discussion of certain of the preparations is given in other sections of this report.

III. PRODUCTION OF ANTISERA

On 1 April 1945 there were 1920 large animals and 1502 small animals at the Behringwerke. Horses made up 1607 members of the former group and rabbits 1075 of the latter. The numbers and species of large animals immunized with various products is given in Appendix IV; the small animals are listed in Appendix V. The general appearance of the animals was good.

Serum producing horses are not put out to graze in the nearby pasture. Instead, the grass is hand cut and brought to the stables and the horses are exercised daily for one hour in a corral. Bedding in the stalls consists of dried leaves, moss and twigs collected by hand from a nearby forest. At the time of our visit there was sufficient fodder available at the Behringwerke for only two additional days. Approximately 18 tons of feed, i.e., hay and oats are required daily. Arrangements were made with the Military Government for permission for the Behringwerke to use its own charcoal burning trucks to transport oats from its own depot 5 kilometers away and to obtain hay, formerly the property of the Wehrmacht, from a distance of 20 kilometers. The establishment currently is short of labor due to the freeing of foreign workers by our armies.

Records of the organization were distributed in a number of small towns in the vicinity, ostensibly

to avoid damage by the Allied war machine. Therefore, some difficulties were encountered in collecting data. A visit to Gladbach revealed that papers were stored in no less than three locations in this town.

Information on immunization of horses obtained by discussion with members of the staff and from available records is summarized in Appendix VI. The following list of records and catalogues obtained from Behringwerke have been filed with the CIOS Secretariat: (1) Behringwerke catalogue and diary, leather covered; (2) copies of Catalog No. 23 describing products for human therapy; (3) two copies of Catalog No. 10 describing products for veterinary therapy and; (4) ten individual records of horses including injection and bleeding schedules.

Standard toxins and antitoxins for assay of products are provided by the German Government. Control analyses on products sold in Germany are made at the Staatliches Serum Institut, Frankfurt a. Main.

In general, the Behringwerke employ the same methods for the preparation of antisera that are in current use in the United States and the United Kingdom. However, many of the practices in use are considered less efficient than those employed in the United States. For example, productive horses could be bled more frequently by rearrangement of the injection and bleeding schedules and by the intravenous administration of saline solution immediately following each bleeding. Also, no anticoagulant is used in any of the drawn hyperimmune blood, thus only serum is collected. While this method has certain advantages when some types of finished products are desired, the yield is 5 - 10 percent less than when anticoagulants are employed. Ammonium sulphate precipitation and, in some instances, protein digestion are employed for the concentration of antibody. In brief, it is doubtful whether the Serum Production Division of the Behringwerke could compete successfully in normal trade with American firms without the help of government subsidy and the benefits accrued from cartelization.

IV. PRODUCTION OF VACCINES

In general, the methods employed at the Behringwerke for the preparation of bacterial vaccines and toxoids were in conformity with those in common use in the United States and the United Kingdom. Certain information on the strains of organisms and the technique used are given in Appendixes III and VI, and further data may be obtained from the Behringwerke descriptive catalogues Nos. 10 and 23.

In addition to the standard bacteriological products the Behringwerke prepares a number of virus and rickettsial vaccines.

Influenza Vaccine. A large stock of influenza virus vaccine was prepared in October, 1944 for use in case of an epidemic during the winter of 1944-45. This was not issued because the need for it never arose.

The vaccine was prepared from chorioallantoic fluid of embryonated egg by techniques similar to those currently employed in the United States and England. Several strains of influenza A virus were used as seed material, i.e., PP-8, W.S., and several strains isolated in recent years in Germany. Pools were made of unconcentrated fluid from eggs infected with the different strains with the object of immunizing against all possible antigenic components of A virus. Chorioallantoic fluids having erythrocyte agglutination titers of 1/1000 by Hirst's chicken cell technique were included in the pools. Except for inactivation of the virus by formalin, no additional treatment was applied to the unconcentrated fluid which constituted the final vaccine.

It is worthy of note that influenza B virus was not included in the vaccine. Indeed, it was the belief of Drs. H. Schmidt, Bieling, Oelrichs and Haas that no strain of B virus was available in Germany. These workers asked for information regarding influenza B virus infections and the serological response which it elicits. Furthermore, they wished to have the Lee strain which they knew had been isolated although they seemed unfamiliar with published works of the past few years regarding it.

Yellow Fever Vaccine. A considerable quantity

of yellow fever vaccine is in the Behringwerke. This was prepared slightly more than two years ago for the Afrika Korps but was never requisitioned. Most of the 20,000 ampules contain suspensions of mouse brain infected with a neurotropic strain of yellow fever which were dried from the frozen state, sealed in vacuum and stored at refrigerator temperature. There has been no yellow fever vaccine produced in Marburg since the allies reconquered Africa.

From 1939 until the present, the 17 D (D for Dog) strain of yellow fever virus has been maintained at the Behringwerke. Vaccine was prepared from chorio-allantoic membranes infected with the strain. Drs. Bieling and Oelrichs considered this product preferable to the vaccine made from mouse brain, however, the German Army preferred the latter and ordered it prepared. The 17 D strain of yellow fever virus was obtained by Dr. Bieling from the Lister Institute, London, England in 1939. According to Dr. Bieling, the strain has not been given to the Japanese; neither has any yellow fever vaccine been prepared at the Behringwerke for them.

Typhus Vaccine. Three types of epidemic typhus vaccine are prepared at the Behringwerke. These are derived from infected rabbit lung, from intestines of infected lice, and from infected yolk sacs of eggs.

Rabbit lung vaccine is prepared in the manner of the French workers. Rabbits are injected intratracheally with a strain of Rickettsia prowazekii adapted to growth in rabbit lung tissue which was obtained from Dr. Paul Giroud of the Pasteur Institute, Paris, France. No precautions are taken to protect the inoculator except that afforded by immunization with typhus vaccine at monthly intervals. Several of the workers have developed the disease. Although several thousand rabbits have been used in the past year for the preparation of this type of vaccine none has been made for several months because of the shortage of rabbits. If these animals were again available 250 liters of this type of material could be produced each month.

The standard technique of Weigl, i.e., intra-rectal inoculation of lice and collection of infected

intestinal cells, is used for the preparation of louse type vaccine. Production of louse vaccine never reached a large scale in Marburg. With the arrival of the American armed forces and the liberation of the Polish and Russian prisoners who served as immune hosts for the infected lice, the production of this type of vaccine ceased. Dr. Richard Haas who was in charge of this work had previously occupied a similar position in the Behringwerke laboratory at Lemberg, Silesia. Photographs illustrating the technique used in obtaining infected louse material are reproduced in Appendix XIII. These photographs were collected by Dr. Haas at Lemberg. Immediately prior to the capture of Lemberg by the Russians, Dr. Haas was transferred to Marburg with instructions to develop production on a similar scale at the new location.

Typhus vaccine prepared from infected yolk sacs is made in a large one story wooden building which is separated from the others. The capacity of the incubator is sufficient to handle from 90,000 to 100,000 eggs per month. Seven day embryos are inoculated into the yolk sac with a suspension of an egg adapted strain of R. prowazeki which is so diluted as to contain an infectious dose sufficient to cause the death of the embryos in 5 days. Infected yolk sacs are harvested on the 5th day and emulsified by being shaken by hand in 2 liter bottles which are about 1/4 filled with glass beads. A 10 percent suspension is prepared with phenol-saline solution (30 cc per yolk sac) and, after centrifugation to remove large particles the product is stored at refrigerator temperature. Formalin is never used for the inactivation of the rickettsiae. The final vaccine is similar in gross appearance to the several samples of captured German typhus vaccine that have been studied at the 1st Medical General Laboratory (U.S. Army). It differs considerably in appearance from the extracted yolk sac typhus vaccine which is made commercially in the United States and Canada.

Typhus vaccines are all checked for potency by the Staatliches Serum Institut, Frankfurt a. Main. In this assay guinea pigs are inoculated intraperitoneally with 3 doses of vaccine and subsequently challenged with a suspension of infected guinea pig brain. Daily temperatures are taken and resistance

or susceptibility is determined by the presence or absence of fever for 5 days between the 6th and 12th days following the injectional challenge dose. The Behring workers said they were unaware of other methods for standardizing typhus vaccine.

No work has been done at Marburg on scrub typhus. The staff is unaware of the existence of a strain of scrub typhus in Germany.

Rabies Vaccine. Rabies vaccine is prepared for veterinary use from central nervous system tissues of infected rabbits. The tissue is air dried and treated with phenolized ether. Chloroform killed rabies vaccine is not produced.

V. BIOLOGICAL PRODUCTS IN STOCKS AND ESTIMATED CAPACITY FOR THEIR PRODUCTION

A list of the quantities of different sera, vaccine and diagnostic preparations possessed by Behringwerke on 1 April 1945 is given in Appendix VII. For comparison, copies of similar inventories prepared at the end of the year 1935 and 1931 are given in Appendix VIII and IX.

The capacity of Behringwerke, Marburg for the monthly production of various biological materials is given in Appendix X.

VI. MATERIALS SUPPLIED TO WEHRMACHT

A file reported to contain all records of sales and shipments made by the Behringwerke to the Wehrmacht during the period January 1940 to February 1945 was obtained. This is deposited with the CIOS Secretariat. To illustrate the shipments made during a representative month, data for December 1944 are given in Appendix XI.

VII. RESEARCH WORK CARRIED ON AT BEHRINGWERKE

During the brief stay of the CIOS group at the Behringwerke it was not possible to attempt to evaluate critically the investigative work which had been done. Certain aspects of the problems are covered in other sections of this report. In general, discussions with Drs. Schmidt, Bieling, Haas and Oelrich indicated

that these workers were sound in their ideas and well acquainted with developments in their fields. Of course, many of the current reports in the allied literature were not available in Germany. In the field of virus and rickettsial diseases one gained the impression that the methods for the preparation of these vaccines had been dictated by the German Government and were followed against the better judgement of the scientific workers.

Some indications of the work done in the past few years is given by the bibliography of published articles from the Behringwerke and the Emil von Behring Institut. See Appendix XII.

VIII. RECOMMENDATIONS

1. It is recommended that the Behringwerke, Marburg, be permitted to resume operations under the supervision of Allied Military or control personnel.

2. It is further recommended that the products manufactured at the Behringwerke, Marburg, be supplied to German civilian population through normal commercial channels. The capacity for production of the Behringwerke, Marburg, is sufficiently great to more than fulfill the requirements of postwar Germany. It is therefore suggested that a portion of the output of this plant might be diverted through appropriate channels to other European nations where need for therapeutic serums, vaccines, toxoids and related products is greater than their capacity to produce them.

3. In the event of an extreme emergency, the diagnostic and therapeutic biological products produced by the Behringwerke might be used by the Allied Military Forces. However, such use should be contingent upon careful assay by competent allied military personnel immediately prior to the release of the products for distribution to the Allied Military Forces.

4. Since biological products for use in Germany are normally assayed at the Staatliches Serum Institut in Frankfurt a. Main, it is recommended that this institute also be permitted to resume operations.

APPENDIX I

PERSONALSTAND VOM 28. MÄRZ 1945

			Männer	Frauen
Wissenschaftliches Personal:	Deutsche		11	29
"	Russen			2
Kaufmännisches Personal:	Deutsche		20	31
"	Kroaten		1	
Technisches Personal:	Deutsche		175	200
"	Belgier		8	
"	Kroaten		1	31
"	Franzosen		1	
"	Letten			15
"	Russen		86	11
"	Staatenlose		1	
"	Russische Kriegs- gefangene		121	
Gesamt:				425 319

APPENDIX II

Letter Concerning Dr. R. Haas

28. März 1945

Certificate

Richard Haas, M.D., Lecturer on Hygiene and Bacteriology at the University of Marburg, born 23rd Sept. 1910 in Chemnitz, is occupied as scientific research-worker in the "Behringwerke", Marburg and in the Institute of experimental Therapy "Emil von Behring" which is connected with the Behring-Works. His routine work consisted in supervising the current medical diagnostic work in the laboratory as well as in controlling the manufacture of commercial diagnostic preparations.

Soon after the outbreak of this war, Dr. Haas was asked to reorganize the medical diagnostic institute in Posen and after having put this institute in working order, Dr. Haas was ordered on behalf of the Behringwerke, Marburg, to establish an institute in Lemberg for the manufacture of typhus vaccine to an extent such as to be able to satisfy even a very great demand.

Since the army (Heer) did not feel inclined to allow the Behringwerke the disposal of Dr. Haas for the above named task, the Behringwerke were compelled to make special arrangements with the Waffen-SS, who was the only one able to treat the case of Dr. Haas in an exceptional way. Only by letting Dr. Haas to be enlisted in the Waffen-SS was it possible for him to fulfil his task in Lemberg. After the surrender of Lemberg, Dr. Haas left for Marburg and was ordered to establish in the Behringwerke, new laboratories for the production of typhus vaccine on a large scale together with research about a possible influenza virus prophylactic.

We hereby certify that with the exception of 2 short military instructions served in the territory of the Reich, Dr. Haas uninterruptedly was occupied in the civilian sector with the above named tasks, for the maintenance of which, Dr. Haas is indispensable. Considering the importance of this work for the general public health, we beg to allow Dr. Haas to continue his work in the Behringwerke.

APPENDIX II (continued)

I.G. Farbenindustrie Aktiengesellschaft
Abteilung Behringwerke Marburg/Lahn

/s/ Prof. Schmidt

Institut f. experimentelle Therapie
Emil von Behring Marburg/Lahn

/s/ Prof. Schmidt

APPENDIX III

Biological Products of Behringwerke

A. 1.) Sera für die Human-Medizin:

Botulismusserum gegen die Typen A B
und getrennt gegen die Typen A, B, C and D

Choleraserum, hergestellt durch Immunisierung von
Pferden mit Stämmen des Inaba- und Ogawa-Typs.

Coliserum, hergestellt mit dem Endotoxin aus
Stämmen des Typs 2

(Literatur: Kauffmann, Acta path. et.
microbiol. scand. 21 20.1944)

Diphtherieserum vom Pferd, antitoxisch:

- 1) in 1 ccm 400 AE enthaltend
- 2) in 1 ccm 500 AE "
- 3) in 1 ccm 1000 AE "
- 4) in 1 ccm 2000 AE "

Diphtherieserum vom Rind, antitoxisch:

- 1) in 1 ccm 250 AE enthaltend
- 2) in 1 ccm 500 AE "

Diphtherieserum vom Hammel, antitoxisch:

- 1) in 1 ccm 250 ccm enthaltend
- 2) in 1 ccm 500 ccm enthaltend

Dysenterieserum vom Pferd, antitoxisch:

gegen das Ektotoxin der Shigabazillen und
Anti-Endotoxin gegen das Endotoxin der
Flexnergruppen Y, His, Russel usw.

Erysipelserum vom Pferd:

gewonnen durch Immunisierung von Pferden.
mit Erysipel-Streptokokken

Gasodemserum vom Pferd antitoxisch:

gegen Bacillus Welch-Fränkel
Anti vibrion septique (Pasteur)
Anti Oedematiens (Novy)
Anti Histoliticus (Weinberg)

- a)
- 400 IE Welch-Fränkel
 - 250 IE Vibrion septique
 - 300 IE Oedematiens
 - 20 IE Histoliticus

APPENDIX III (continued)

- b) 150 IE Welch-Fräinkel
100 IE Vibrion septique
80 IE Oedematiens
20 IE Histoliticus

Meningokokken-Serum, hergestellt vom Pferd:
unter Zuhilfenahme bekannter Meningo-
kokken Typen

Milzbrandserum vom Rind

Zur Behandlung der Peritonitis ein Serum, das aus
antitoxischem Coli- und antitoxischem Welch-
Fräinkelserum besteht.

Pestserum vom Pferd:
hergestellt vom Stamm Colombo I

Pneumokokkenserum vom Pferd:
gegen Typ I und Typ II gemessen nach Felton-
Einheiten.

Erysipeloid (Rotlaufserum)

Scharlachserum:
unter Zuhilfenahme der Toxins echter Scharlach-
Streptokokken.

Schlangenserum:
antitoxisches Serum gegen das Gift der
Kreuzotter, der europäischen Sandviper.

Staphylokokkenserum antitoxisch

Tetanusserum vom Pferd:
1) in 1 ccm 600 AE = 150 amerikanische Einheiten
2) in 1 ccm 1000 AE = 500 " "

Tetanusserum vom Rind:
1) in 1 ccm 300 AE = 150 amerikanische Einheiten
2) in 1 ccm 600 AE = 300 " "
3) in 1 ccm 1000 AE = 500 " "

Typhusserum vom Pferd antiendotoxisch

Weilserum vom Pferd
hergestellt unter Heranziehung der Leptospiren-

APPENDIX III (continued)

Typen: Weil, Batavia, Grippotyphosa, Sejro und Canicola

2.) Sera für die Veterinär-Medizin:

Diplokokkenserum vom Pferd:

besser als Diplococcus lanceolatus bezeichnet
(Pneumococcus Typ 10)

Gasödemserum vom Pferd:

100 IE Welch-Fränel-Bazillen
175 IE Vibrio septique-Bazillen
400 IE Oedematiens-Bazillen

Serum gegen die Geflügelcholera
(Pasteurellose Bact. avisepticum)

Fohlenlähmserum

gegen die einzelnen Erregertypen
a) Streptokokken
b) Bact. pyosepticum viscosum
c) Coli-Bakterien
d) Bact. paratyphus abortus equi

und auch als Mischserum

Milzbrandserum vom Pferd und auch vom Rind

Schweinerotlaufserum vom Pferd

Tetanusserum vom Pferd

B. 1.) Impfstoffe für die Human-Medizin:

Antipyogen, Impfstoff hergestellt aus Eitererreger

Cholera-Impfstoff, Vaccine hergestellt aus Inaba- und Ogawa-Stämmen

Diphtherie-Impfstoffe, an Aluminiumhydroxyd absorbierter Diphtherieformoltoxoid, geprüft in Schutzeinheiten nach Prigge.

Dysenterie-Mischimpfstoff,
hergestellt aus Shiga-Toxoid und einer Bazillensuspension aus den verschiedenen Dysenteriebazillen der Flexner-, Y-, Schmitz- usw. Gruppen.

APPENDIX III (continued)

Vaccine zur Behandlung der weiblichen Adnexitis
eine Mischung aus Gonokokkenkulturlysaten,
Puerperal-Streptokokken-Vaccine, Staphylo-
kokkenvaccine und unspezifischen Lipoiden und
Eiweisskörpern.

Fleckfieberimpfstoffe:

- 1) hergestellt aus dem Dottersack des Hähnereies
- 2) als Lungenimpfstoff von Kaninchen und
- 3) als Läuseimpfstoff nach Weigl.
Zur Herstellung des Impfstoffs wird die Rickettsia prowazecki benutzt.

Pestimpfstoff:

dargestellt als Schleimimpfstoff unter Verwendung des Stammes Colombo I

Vaccine zur Behandlung der Aknevulgaris:

hergestellt aus den Aknekulturen 27 und 15 der National Collection of the Lister Institute of Preventive Medicine Collection of Type Cultures, London-Chelsea und Staphylokokken albus und aureus sowie unspezifischen Lipoidstoffen

Scharlach-Absorbat-Impfstoff:

hergestellt aus Scharlachgift getestet nach dänischen bzw. deutschen Hauteinheiten. Die dänischen und die deutschen Hauteinheiten sind identisch.

Tetanus-Adsorbat-Impfstoff:

an Aluminiumhydroxyd absorbiertes Tetanus-Formoltoktoxin zur aktiven Schutzimpfung gegen Tetanus, geprüft in Schutzeinheiten nach Prigge.

Typhus-Impfstoff:

hergestellt unter Zuhilfenahme von Typhusstämmen mit starkem Vi-Faktor.

Typhus-Paratyphus-Impfstoff

eine Mischung aus Typhusimpfstoff und Paratyphus-A- und Paratyphus-B-Quoten.

Auto - Vaccinen

2.) Yatren- Impfstoffe.

Gonokokken-Vaccine, aufgeschwemmt in 3% iger Yatrenlösung

APPENDIX III (continued)

Neuroyatren:

Autolysate von *Bacillus prodigiosus pyocyaneus* und *Staphylococcus aureus* in 3%iger Yatren-Lösung

Staphylokokken-Yatren:

Staphylokokken-Vaccine in 3%iger Yatrenlösung

Strepto-Yatren:

Streptokokkenvaccine in 3%iger Yatrenlösung

Yatren-Vaccine zur Behandlung des *Ulcus molle*:

Aufschwemmung von *Ducrey-Bazillen* in 3%iger Yatrenlösung

3.) Impfstoffe für die Veterinär Medizin:

Avirulente Abortus-Bang-Kultur (durch Galleinfuss)

Diplokokken-Formol-Vaccine
gegen die Diplokokken-Infektion
(Pneumokokken Typ 10 der Kälber, Fohlen usw.)

Geflügelcholera-Impfstoffe
Vaccinen aus abgetöteten Geflügelcholera-Bakterien

Fohlenlähme-Vaccinen
hergestellt als Teil- oder Mischvaccinen aus den 4 bekannten Erregertypen

Milzbrand-Adsorbat-Impfstoff
abgeschwächte Sporen adsorbiert an Aluminiumhydroxyd

Rauschbrandformolkultur
zur Schutzimpfung der Rinder gegen Rauschbrand- und Rauschbrandpararauschbrand Kultur zur Schutzimpfung der Schafe gegen die Infektion mit dem *Bacillus Chaiveaui* und *Vibron septique*

Schweinerotlaufkulturen:
in Tierversuchen auf Virulenz geprüft

Yatren-Vaccinen

gegen den Abortus Bang des Rindes, d.h.
abgetötete Bangsche Bakterien in 3%iger Yatrenlösung

APPENDIX III (continued)

gegen den Paratyphus Abort der Stuten =
abgetötete Paratyphus Abortus equi - Bazillen
in 3%iger Yatrenlösung

Yatrenvaccine E 104

Polyvalenter Mischimpfstoff in 3%iger Yatren-
lösung mit Zusatz unspezifischer Quoten

Auto - Vaccinen

C. 1.) Diagnostische Präparate:

Schick-Test

Dick-Test

Freies Antigen zur Diagnose des Lymphogranu-
loma inguinale

Tularämie-Antigen zur Hautreaktion zur Feststel-
lung der Infektion

2.) Serologische Reagenzien

Extrakte für die Wassermann-Reaktion

Alkohol.Luesleberextrakt

Alkohol.Chol.Luesleber-Rinderherzextrakt

Alkohol.Chol.Rinderherzextrakt

Alkohol.Chol.Menschenherzextrakt

Alkohol.Chol.Meerschweinchenherzextrakt

Alkohol.Chol.Pferdeherzextrakt

Ambozeptoren

Konserviertes Meerschweinchen-Komplement

Hammelblutkörperchen-Aufschwemmung 5%ig

Extrakte für:

Flockungsreaktion nach Kahn (Routine Test)

Citochol-Reaktion

Klärungs-Reaktion II nach Meinicke (M.K.R.II)

Ballungs-Reaktion nach Müller (M.B.R.II)

Lentochol-Reaktion nach Sachs-Georgi

Abortus-Bang-Antigen

Echinokokken-Antigen

APPENDIX III (continued)

Gonokokken-Antigen

Keuchhusten-Antigen

Tuberkulose-Antigen

Weil-Antigen

Testsera für die Blutgruppenbestimmung

Verschiedene Agglutinierende Sera

D. 1.) Präparate zur oralen Anwendung:

Boviserin, steriles, normales Rinderserum und

Equiserin (in erster Linie zur Behandlung der
Säuglingsdyspepsie)

Typhus-Phagen

Dysenterie-Phagen

APPENDIX IV

Grosstierbestand am 1. April 1945

226 Diphtherie-Pferde
290 Tetanus-Pferde
317 Fränkel-Pferde
86 Novy-Pferde
89 Pararauschbrand-Pferde
368 Rotlauf-Pferde
9 Coli-Kälberruhr-Pferde
8 Paratyphus-equi-Pferde und für Füchse
27 Pyosepticum-Pferde
17 Streptokokken-Druse-Pferde
15 Scharlach-Pferde
4 Botulismus-Pferde
52 Coli-Pferde
2 Puerperalfieber-Pferde
1 Staphylokokken-Pferde
12 Streptokokken-Pferde
15 Normal-Pferde
30 Pasteurella-Pferde
1 Tularämie-Pferde
12 ausgeliehene Pferde
1 Quarantäne-Pferd (Kleinstpferd)
19 Fahrpferde
1607

49 Diphtherie-Rinder
43 Tetanus-Rinder
14 Coli-Kälberruhr-Rinder
4 Pocken-Versuchs-Rinder
3 Tierstreptokokken-Rinder
25 Normal-Rinder
138

145 Diphtherie-Schafe
4 Ambozeptor-Schafe
16 Normal-Schafe
165
3 Versuchsziegen
10 Rotlauf-Versuchs-Schweine

APPENDIX V

Kleintierbestände am 1.4.1945.

Frische Tiere:
40 Mäuse

62 Meerschweinchen

175 Kaninchen

62 Hühner

1 Hahn

Tiere im Versuch:

900 Kaninchen

223 Meerschweinchen

9 Hühner

30 Ratten

1502

APPENDIX VI

IMMUNIZATION OF HORSES

(From Report of Lt. Col. R. A. Huebner, V.C.,
Vet. Div., O.Ch./Surg., E.T.C. to Med. Intell.
Br., O.Ch./Surg., E.T.O., 12 April 1945).

Diphtheria

a. Horses are chosen for hyperimmunization against diphtheria by intradermal Schick testing (in the dose of 1 M.L.D. of toxin); in the opinion of the undersigned this seems rather cumbersome since reading entails measurement of the edematous area and estimation of the dermal thickening. Our method has been the injection of two M.L.D.'s. of toxin into the conjunctival sac, a test which can be readily read with a minimum of error. The Production Manager indicated that they too were familiar with the Fraser modification of the Roemer test (intradermal rabbit or guinea-pig assay based on the necrotizing effect of diphtheria toxin), but it is apparent they have not correlated the Schick test, the Roemer test and the actual amount of circulating anti-toxin. The Production Manager admitted that his intradermal Schick test was not unqualifiedly satisfactory because occasionally an animal would be found whose tissue immunity gave a negative Schick test which was not supported by findings in the blood stream. Despite his selective methods the Production Manager admitted that only 80% of the horses so chosen produced diphtheria antitoxin in commercial amounts which, in the consideration of the undersigned, is due to the incomplete screening by their testing. Horses for the production of diphtheria antitoxin can be chosen within a marginal error of 5%, but adequate and careful selection must be accomplished by diagnostic methods.

b. The diphtheria organisms are grown on Pope's protein digest medium. Toxin to be converted into toxoid for equine hyperimmunization is tested only by the flocculation method without recourse to determination of the M.L.D. content. A satisfactory toxin ranges from 40 to 50 Lf units per c.c. Toxin is converted into toxoid by the addition of formalin in amounts from 0.9% to 1.2%, maintained at room temperature for 48 hours, then incubated for 30 days. Immediately prior to its injection into the animals it is either precipitated by the addition of alum (5% solution in amount of 20%) and

APPENDIX VI (continued)

doubly washed, or there is added 1% cooked tapioca.

c. Diphtheria toxoid for human use is prepared in essentially the same way by precipitation with alum followed by a double wash.

Tetanus

a. Horses are chosen for hyperimmunization against tetanus merely by conformation, age and temperament. Primary basic immunity is, of course, essential.

b. The medium used for the propagation of the organisms is the ordinary meat broth peptone mixture and is converted into toxoid in the usual way. For hyperimmunization the toxoid is not precipitated. The injection series include both toxoid and toxin in varying amounts. Test bleedings are assayed by the utilization of mice; guinea pigs are not used, presumably because of the difficulty of their procurement. The Laboratory Director implied no familiarity with the tetanus flocculation test. It is interesting to note that these laboratories calculate the mouse test as 1/10th of that for the guinea pig, whereas in our experience it more closely approximates 1/8th; obviously this would result in the Germans having slightly higher readings on any given sample.

c. Plain (unprecipitated) toxoid is prepared for human use.

Gas Gangrene (Cl, welchii, novyi, oedematis, maligni, histolyticum, oedematiens)

a. Animals chosen for the production of gas gangrene antitoxin are determined by conformation, age and temperament. For this purpose basic immunity is not considered essential by the laboratories.

b. The medium used for the propagation of the various members of the genus Clostridium which cause gas gangrene is the wellknown meat, meat broth, peptone mixture. All vaccines and hyperimmune test bleedings are assayed by mouse test. Only toxin is utilized as the antigen, the drastic effects of which can be noted

APPENDIX VI (continued)

from the individual horse records attached hereto. The Production Manager made no mention of the use of toxoid in attempting to establish basis immunity prior to the hyperimmunization of these animals. Especially because of the extensive tissue damage produced by these toxins, we have always considered a highly antigenic toxoid to be much more satisfactory, not only in that a hyperimmune serum of higher titer is produced, but in that less injury is done the animals.

c. No toxoid is prepared for human use. The Germans, too, have tried to produce an antigen satisfactory for the immunization of human beings against these infections but have met with the same obstacles, i.e., variation in individual susceptibility to the antigen and the large dose necessary to produce measurable circulating immunity.

Botulism

a. Comments made in paragraph above apply equally to botulism. Of course, immune serum is prepared principally for types A and B, most of the individual horses being hyperimmunized against both simultaneously. There is also practiced the expedient of hyperimmunizing a few individuals against only one of the types, in order that the dual serum may be fortified with either one or the other in order that the finished product may meet the required potency. This practice is not uncommon.

b. No toxoid is prepared for human use.

APPENDIX VII

BIOLOGICALS IN STOCK ON 1 APRIL 1945

A. 1.)

Sera für die Human-Medizin:

Botulismus-Serum	347,000	CC.
Cholera-Serum	1,118,000	"
Coli-Serum	83,000	"
Diphtherie-Serum vom Pferd 400fach	851,000	"
" " " " 500 "	3,620,000	"
" " " " 1000 "	1,302,000	"
Diphtherie-Serum vom Hammel 250fach	97,000	"
" " " " 500 "	106,000	"
Diphtherie-Serum vom Rind 250	149,000	"
" " " " 500 "	22,000	"
" " " " 1000 "	10,000	"
Diphtherie-Streptokokken-Serum	11,000	"
Dysenterie-Serum 200fach	359,000	"
" " 400 "	898,000	"
" " 1000 "	581,000	"
Erysipel-Serum	120,000	"
Gasoedem-Serum niederwertig	95,000	"
" " hochwertig	345,000	"
" " höchstwertig	689,000	"
Meningokokken-Serum	568,000	"
Milzbrand-Serum vom Rind	553,000	"
Peritonitis-Serum	701,000	"
Pest-Serum	1,442,000	"
Pneumokokken-Serum	4,685,000	"
Scharlach-Serum	571,000	"
Schlangen-Serum	986,000	"
Staphylokokken-Serum	397,000	"
Tetanus-Serum vom Pferd 300fach	104,000	"
" " " " 600 "	4,058,000	"
" " " " 1000 "	201,000	"
Tetanus-Serum vom Rind 600	72,000	"
" " " " 1000 "	95,000	"
Typhus-Serum	285,000	"
Tularaemie-Serum	16,000	"
Streptokokken-Serum	2,133,000	"
Grippe-Serum	61,000	"
Influenza-Serum	280,000	"
Puerperalfieber-Serum	73,000	"
Skorpion-Serum	429,000	"
Scarla-Streptoserin	120,000	"
Normal-Sera vom Pferd, Rind und Hammel	2,604,000	"
Weil-Serum	273,000	"

APPENDIX VII (continued)

Poliomyelitis-Rekonvaleszenten-Serum	2,000 cc.
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A. 2.)

Sera für die Veterinär-Medizin:

Diplokokken-Serum	145,000	cc.
Gasoedem-Serum	85,000	"
Galloserin	147,000	"
Astibulin (Fohlenlähme-Serum)	1,241,000	"
Milzbrand-Serum vom Pferd und Rind	886,000	"
Schweine-Rotlauf-Serum	5,611,000	"
Coli-Ruhr-Serum vom Pferd und Rind	273,000	"
Kälberparatyphus-Serum vom Pferd und Rind	335,000	"
Pasteurella-Serum	1,053,000	"
Pyoseptikum-Serum	1,015,000	"
Tierstreptokokken-Serum	2,707,000	"

B. 1.)

Impfstoffe für die Human-Medizin:

Antipyogene-Vaccine	706,000	cc.
Bronchopneumonie-Vaccine	30,000	"
Euflamin	597,000	"
Reoderm	197,000	"
Meningokokken-Vaccine	50,000	"
Toxogen	90,000	"
Antipyogene-Yatren-Vaccine	189,000	"
Coli-Yatren-Vaccine	47,000	"
Gono-Yatren-Vaccine	511,000	"
Neuro-Yatren-Vaccine	208,000	"
Staphylo-Yatren-Vaccine	359,000	"
Strepto-Yatren-Vaccine	154,000	"
Ulcatren	48,000	"
Tollwut-Vaccine	24,000	"
Typhus-Impfstoff-T.A.B.	5,660,000	"
Cholera-Impfstoff	350,000	"
Pest-Impfstoff	996,000	"
Scharlach-Adsorbat-Impfstoff	109,000	"
Scharlach-Schutzimpfstoff	195,000	"
Ruhr-Impfstoff	430,000	"
Diphtherie-Impfstoff Al.F.T.	1,876,000	"
Diphtherie-Formoltoxoid	300,000	"
Diphtherie-Scharlach-Impfstoff f.Kinder	6,609,000	"
Diphtherie-Scharlach-Impfstoff f.Erwachsene	446,000	"
Fleckfieber-Impfstoff (Eier- und Lungen-Impfstoff)	812,000	"

APPENDIX VII (continued)

Tetanus-Impfstoff Tetanol	45,000 cc.
Bactifebrin	32,000 "

B. 2.)

Impfstoffe für die Veterinär-Medizin:

Geflügelpest-Adsorbat-Impfstoff	2,038,000	"
Rauschbrand-Formolkultur	6,000	"
Druse-Yatren-Vaccine	203,000	"
Fohlenlähme-Yatren-Vaccine	548,000	"
Schafmastitis-Vaccine	3,000	"
Vaccine gegen die Schafrotz	110,000	"
Rinder-Abortus-Yatren-Vaccine	411,000	"
Stuten-Abortus-Yatren-Vaccine	79,000	"
Yatren-Vaccine gegen die Sterilität d.Rinder	586,000	"
Yatren-Vaccine gegen die Sterilität d.Stuten	855,000	"
Yatren-Vaccine E 104	2,114,000	"
Tetanus-Formol-Toxoid mit Alaun	13,000	"
Paratyphus-Gärtner-Formol-Vaccine	23,000	"
Milzbrand-Adsorbat-Impfstoff	10,000	"

C. 1.)

Diagnostische Präparate:

Schick-Test	7,000	"
Dick-Test	1,600	"
Frei-Antigen	300	"
Tularaemie-Antigen	3,100	"

C. 2.)

Serologische Reagenzien:

Extrakte für die Wassermann-Reaktion	199,000	"
Ambozeptoren	8,000	"
Rinderherz-Extrakt nach Sachs-Georgi	120,000	"
Gonokokken-Antigen	3,000	"
Keuchhusten-Antigen	2,000	"
Tuberkulose-Antigen	2,000	"
Typhus-Antigen	4,000	"
Paratyphus-B-Antigen	3,000	"
Antigen für die Agglutinations-Reaktion	7,000	"
Weil-Antigen	7,000	"
Verschiedene agglutinierende Sera	11,000	"
Test-Sera für die Blutgruppenbestimmung A - B - O	9,000	"
M- und N-Roh-Sera	200	"

APPENDIX VII (continued)

D. 1.)

Präparate zur oralen Anwendung:

Boviserin	263,000 cc.
Equiserin	269,000 "
Typhus-Phagen (Paratyphus)	43,000 "
Ruhr-Phagen	167,000 "

I. G. Farbenindustrie Aktiengesellschaft
Abteilung Behringwerke Marburg

Dr. Demnitz

I. G. FARBENINDUSTRIE AKTIENGESELLSCHAFT

BEHRINGWERKE
Marburg-Lahn
Gegründet von E. v. Behring
E.V. Behring

Ihre Zeichen Ihre Nachricht Von Unsere Zeichen
(Bei Antwort angeben)

MARBURG-LAHN, den
4. April 1945

Sehr geehrter Captain Patterson:

Unter Bezugnahme auf unseren gestrigen Brief und auf die Unterhaltung bei Ihrem heutigen Besuch überreichen wir Ihnen hiermit die Unterlagen zur Beantwortung der Frage 2.

Wie wir Ihnen gegenüber heute bereits zum Ausdruck brachten, befinden sich ausser den in dieser Liste aufgeführten Seren und Impfstoffen weitere Mengen in den verschiedenen Bearbeitungsstadien. Wir haben uns aus der heutigen Unterhaltung vermerkt, dass diese Mengen in der Frage 2 nicht einbezogen sein sollen.

APPENDIX VII (continued)

Hochachtungsvoll

I. G. Farbenindustrie Aktiengesellschaft
Abteilung Behringwerke Marburg

Dr. Demnitz

APPENDIX VIII

ERZEUGNISSE-KONTO MARBURG.
BESTANDE PER 31.12. 1935.

Diphtheriserum	250fach	nativ	61,500	cc.
"	250	" stabil	673,760	"
"	400	" nativ	62,500	"
"	400	" stabil	724,489	"
Diphtherie-Streptokokken-Serum				
	400fach	stabil	27,560	"
Diphtherieserum	400	" eiweissarm	176,260	"
"	450	" stabil	5,300	"
"	500	" nativ	43,000	"
"	500	" stabil	1,005,775	"
"	500	" eiweissarm	132,421	"
"	550	" nativ	50,000	"
"	800	" nativ	12,725	"
Diphtherie-Streptokokken-Serum				
	800fach	konzentr.	4,400	"
Diphtherieserum	1000	" "	719,369	"
Diphtherie-Streptokokken-Serum				
	1000fach	konzentr.	25,530	"
Diphtherieserum	1000	" eiweissarm	13,372	"
"	1400	" nativ	43,500	"
"	2000	" konzentr.	9,770	"
Diphtherie-Hammel-Serum	nativ		45,300	"
"	"	stabil	114,080	"
"	"	konzentr.	4,100	"
Diphtherie-Rinder-Serum	nativ		34,300	"
"	"	stabil	62,140	"
Tetanus-Serum	250fach	nativ	119,100	"
"	"	250	" stabil	712,045
"	"	375	" nativ	209,000
"	"	500	" nativ	407,500
"	"	500	" stabil	5,346,502
"	"	500	" eiweissarm	155,585
"	"	625	" nativ	56,600
"	"	750	" stabil	58,515
"	"	750	" eiweissarm	55,099
"	"	875	" stabil	49,160
"	"	875	" eiweissarm	66,550
"	"	1000	" stabil	284,500
"	"	1000	" eiweissarm	310
"	"	1375	" nativ	25,000
"	"	1500	" konzentr.	8,975
"	"	2000	" "	160,652
"	"	2750	" "	5,700

APPENDIX VIII (continued)

Tetanus-Serum	3000fach	konzentr.	0,900	cc.
" "	3125	" "	0,300	"
" "	3250	" "	4,480	"
" "	3750	" "	1,200	"
Tetanus-Rinder-Serum	250fach	stabil	75,530	"
" "	500	" "	47,445	"
" "	875	" "	11,100	"
" "	875	" eiweissarm	14,000	"
" "	1000	" stabil	46,900	"
" "	1000	" konzentr.	7,790	"
" "	2500	" "	5,230	"
Dysenterie-Serum	100fach	stabil	381,890	"
" "	200	" "	328,750	"
" "	200	" eiweissarm	22,830	"
" "	400	" stabil	754,075	"
" "	700	" "	11,700	"
" "	1000	" "	142,000	"
Dysenterie-Serum	agglutin.	stabil	0,500	"
Anaeroben-Serum	konzentr.		51,510	"
Botulismus-Serum	stabil		17,550	"
" "	konzentr.		7,500	"
Cholera-Serum	konzentr.		10,525	"
Coli-Serum	nativ		99,100	"
" "	stabil		811,390	"
" "	konzentr.		3,800	"
Enterokokkenserum	stabil		23,870	"
Erysipelserum	nativ		7,500	"
" "	stabil		190,440	"
" "	konzentr.		21,000	"
Gasbrand-Serum	nativ		72,030	"
" "	hochwertig		98,630	"
Gasbrand-Fränel-Serum	nativ		42,000	"
" "	" stabil		895,700	"
" "	" hochwertig		71,690	"
"	Novy-Serum	nativ	12,600	"
" "	stabil		127,200	"
"	Pararauschbrand-S.	nativ	65,600	"
" "	" stabil		765,130	"
"	Histolitikus-S.	nativ	10,050	"
" "	" stabil		72,590	"
Gonokokkenserum	nativ		7,800	"
" "	stabil		64,950	"
Grippeserum	stabil		39,280	"
Influenza-Serum	nativ		7,200	"
Keuchhustenserum	nativ		48,860	"
" "	stabil		35,260	"

APPENDIX VIII (continued)

Meningokokkenserum	585,845	cc.
" " konzentr.	3,200	"
Milzbrandserum stabil	162,170	"
" " konzentr.	34,910	"
Peritonitisserum stabil	191,120	"
Pestserum stabil	93,660	"
Pneumokokkenserum stabil gewöhnl.	250,540	"
" " stab.hochwert.		
monoval.Typ I	18,850	"
" " stab.Typ I und II		
hochw.polyvalent	33,825	"
Puerperalfieberserum nativ	86,600	"
" " stabil	78,400	"
" " konzentr.	248,165	"
Scharlachserum nativ	32,700	"
" " stabil	253,201	"
" " konzentr.	104,623	"
Scharlach-Streptokokkenserum stab.	28,095	"
Schlangenserum nativ	8,100	"
" " stabil	169,740	"
" " konzentr.	0,750	"
Skorpion-Serum nativ	22,100	"
" " stabil	69,655	"
Staphylokokkenserum stabil	112,725	"
Streptokokkenserum nativ	278,700	"
" " stabil	1,779,775	"
" " konzentr.	2,000	"
Typhus-Serum stabil	9,955	"
Rotlaufserum nativ	1,252,000	"
" " stabil	14,983,610	"
Normalserum nativ	1,406,767	"
" " stabil	544,015	"
" " konzentriert	7,800	"
Schweinepestserum	3,686,310	"
Agglutinierende Sera	2,710	"
Ambozeptor	3,054	"
Antagasan	7,060	"
Extrakte	275,670	"
Glycerin-Lymphé	0,031	"
Lanolin-Lymphé	0,352	"
Yatren-Casein Stark	115,000	"
Yatren-Lösung	3,273,000	"
Yatren-Säure	86,181	"
Mallein konzentriert	1,808	"
Mallein verdünnt 1:4	1,800	"
Testsera für die Blutgruppenbestg.	0,236	"

APPENDIX VIII (continued)

Tuberkulose-Antigen n.Witebsky	0,535	cc.
Gonokokken-Antigen n.Witebsky	7,725	"
Gonokokken-Antigen M 60	1,332	"
" " MK 60 Behring	1,915	"
Anti-M-Serum	0,028	"
Anti-N-Serum	0,032	"
Weil-Serum	0,740	"
Istizin-Tabletten	10,000	"

Human-Yatren-Vaccine:

Antipyogene-Yatren-Vaccine	78,001	"
Coli-Yatren	63,365	"
Dysenterie-Vaccine	0,645	"
Gono-Yatren	247,857	"
Neuro-Yatren	39,904	"
Staphylo-Yatren	155,093	"
Strepto-Yatren	116,218	"

Human-Impfstoffe:

Diphtherie-Anatoxin	20,857	"
Diphtherie-Gift	0,036	"
Gigas-Anakultur	3,100	"
T-A.F.	117,075	"
Scharl.-Schutzimpfstoff	68,460	"
Scharl.-Gift	0,362	"
Tetanus-Anatoxin	2,401	"

Astibulin-Gruppe:

Diplokokken-Kalberruhr-Serum	73,800	"
Druse-Serum	461,280	"
Fohlenlähmese serum	95,580	"
Geflügel-Cholera-Serum	363,420	"
Hundestaupeserum	40,675	"
Kalberruhr-Serum	241,990	"
Milzbrandserum	397,200	"
Paratyphus-Serum	258,780	"
Schweineparatyphus-Serum	109,700	"
Pasteurella-Serum	250,300	"
Petechialfieber-Serum	91,450	"
Pyoseptikum-Serum	441,330	"
Pneumokolin	240,510	"
Pneumoserin	324,490	"
Rauschbrandserum	91,480	"
Suiszeptiferin	58,670	"
Schweineseucheserum	385,910	"
Tierstreptokokkenserum	424,845	"

APPENDIX VIII (continued)

Veterinär-Vaccine und Kulturen:

Druse-Yatren-Vaccine	71,635	cc
Yatren-Vaccine E 104	259,194	"
Yatren-Vaccine g. d. Euterentz d-d-Scha.	6,150	"
Fohlenlähme-Yatren-Vaccine	70,800	"
Hundestaupe-Yatren-Vaccine	15,115	"
Milzbrand-Lanolin-Vaccine f. Rinder	11,170	"
Yatren-Vaccine g. Paratyph. Fohlenl.	1,200	"
" " g. Pneumonie d. Lämmer	2,900	"
Rauschbrand-Anakultur	21,280	"
Rinder-Abortus-Yatren-Vaccine	134,790	"
Stuten-Abortus- " "	40,380	"
Yatr-Vacc. g.d. Steril.d.Rinder	142,700	"
" " " " " " Stuten	99,380	"
Streptokokken-Yatren-Vaccine	0,780	"
Rotlaufkulturen	2,700	"
 Venülen 8 ccm	52,451	Stück
" 8 " Spezial	9,879	"
" 12 "	12,736	"
" 15 "	9,816	"
" 30 "	7,815	"
" 50 "	545	"
" 100 "	680	"
" nach Widal	888	"

APPENDIX IX

ERZEUGNISSE-KONTO PER 31.12.1931

M A R B U R G

<u>Gruppe Ia native Sera</u>			<u>Ltr.</u>
Diphtherieserum	250fach		275 Liter
"	400 "		380.9 "
"	500 "		1641.2 "
"	650 "		84.5 "
"	900 "		52.6 "
"	1400 "		0.290 "
Tetanusserum	250 "		478.5 "
"	500 "		2405.4 "
"	750 "		98.0 "
"	1000 "		119.5 "
"	1375 "		32.0 "
"	1500 "		60.2 "
Dysenterieserum	200 "		84.3 "
"	200 "		46.0 "
"	400 "		578.9 "
Coli-Serum			68.000 "
Diphtherieserum	v. Hammel		71.770 "
"	v. Rind		268.400 "
Gasbrand-Serum			92.100 "
Grippe-Serum			16.700 "
Milzbrand-Serum			0.400 "
Petechialfieberserum			0.500 "
Pneumokokkenserum			51.000 "
Rauschbrand-Serum			2.000 "
Staphylokokken-Serum			48.500 "
Streptokokken-Serum			348.000 "
Tetanus-Rinderserum			277.500 "
Typhus-Serum			10.000 "
Pest-Serum			10.300 "

<u>Gruppe Ib stabilisierte Sera</u>			
Diphtherie-Serum	250fach		296.360 "
"	400 "		532.249 "
"	500 "		1346.436 "
Tetanus-Serum	250 "		250.890 "
"	500 "		1760.350 "
"	750 "		72.218 "
"	1000 "		52.847 "
Dysenterie-Serum	200 "		38.270 "
"	200 "		818.070 "
"	400 "		220.860 "
Coli-Serum			77.300 "
Diphtherie-Serum	v. Hammel		63.170 "

APPENDIX IX (continued)

Diphtherie-Serum v.Rind	179.110	Liter
Gonokokken-Serum	22.410	"
Grippe-Serum	14.500	"
Influenza-Serum	6.400	"
Meningokokken-Serum	62.340	"
Milzbrand-Serum	86.402	"
Pneumokokken-Serum	49.705	"
Scarla-Streptoserin	3.350	"
Scharlach-Serum	206.682	"
Scorpion-Serum	1.000	"
Staphylokokken-Serum	20.740	"
Streptokokken-Serum	45.185	"
Tetanus-Rinderserum	215.310	"
Typhus-Serum	19.165	"
Diphtherie-Streptokokkenserum	13.460	"
Pest-Serum	4.690	"

Gruppe Ic konzentrierte Sera

Diphtherie-Serum 1000-fach	301.243	"
" 1300 "	36.100	"
" 1600 "	24.900	"
" 1700 "	22.000	"
" 1800 "	97.900	"
" 2000 "	158.700	"
" 2400 "	8.900	"
" 5000 "	0.540	"
Tetanus-Serum 625	71.300	"
" 750 "	8.100	"
" 1500 "	25.275	"
" 2000 "	110.049	"
" 2250 "	100.250	"
" 2500 "	9.698	"
" 2625 "	10.200	"
" 3125 "	8.891	"
" 3750 "	1.678	"
Anaeroben-Serum	14.380	"
Cholera-Serum	24.710	"
Coli-Serum	23.525	"
Diphtherie-Serum v.Hammel	12.012	"
" " v.Rind	4.640	"
Gasbrand-Serum	105.748	"
Peritonitis-Serum	4.000	"
Scharlach-Serum	217.672	"
Tetanus-Serum v.Rind	20.760	"

APPENDIX IX (continued)

Gruppe I d eiwáissarme Sera

Diphtherie-Serum	400fach	156.034 Liter
"	500 "	194.096 "
"	1000 "	64.008 "
Tetanus-Serum	500 "	76.555 "
"	750 "	33.595 "
"	1000 "	46.475 "

Gruppe IIa Rotlauf-Serum nativ.

Gruppe IIb Rotlauf-Serum stabil

Gruppe III Schweinepest-Serum

Gruppe IV (Astibulin)

Druse-Serum		4.665	"
Paratyphus-Serum		8.325	"
Pyoseptikum-Serum		3.800	"
Tierstreptokokken-Serum		5.100	"
Normales-Hammel-Serum nativ		1.625	"
Normales-Rinder-Serum	"	7.255	"
" Pferde-Serum "		115.500	"
" Hammel-Serum stabil		1.740	"
" Rinder-Serum stabil		7.095	"
" Pferde-Serum stabil		42.434	"
Geflügel-Cholera-Serum		2.500	"
Schweineseuche-Serum nativ		10.700	"

Kulturen-Gruppe

Diphtherie-Gift		0.869	"
Scharlach- "		3.924	"
Schweinerotlauf-Kulturen		0.380	"

Gonokokken-Gruppe

Antipyogenes-Yatren-Vakzin		93.306	"
Gono-Vaccin		8.735	"
Gono-Yatren		130.238	"
Staphylo-Yatren		134.474	"
Staphylokokken-Vaccine		1.404	"
Spirochäten-Vaccine		0.172	"

Veterinär-Vaccinen-Gruppe

Druse-Yatren		31.675	"
Fohlenlähme-Yatren		28.960	"
Undestaupe-Yatren		11.470	"
Milzbrand-Vaccin		00.136	"
Rinder-Abortus-Yatren-Vaccin		74.050	"
Stuten-Abortus-Yatren-Vaccin		15.400	"

APPENDIX IX (continued)

Schafrotz-Yatren-Vaccin	10.750	Liter
Yatren-Vaccin El04	113.030	"
Yatren-V.gg. Euterentzündung d. Schafe	20.050	"
" " Mastitis der Rinder	30.175	"
" " Paratyphus-Fohlenlähme	3.140	"
" " Sterilität d.Rinder	159.260	"
" " " d.Stuten	23.440	"
Streptokokken-Yatren-Vaccin	5.470	"

Human Vaccinen-Gruppe

Cholera-Impfstoff	10.920	"
Coli-Yatren	63.535	"
Diphtherie-Anatoxin	168.557	"
Diphtherie-Schutzmittel T.A.	22.197	"
" " T.A.F.	96.371	"
Dysenterie-Impfstoff	8.840	"
Grippe-Yatren-Vaccin	1.982	"
Neuro-Yatren	47.572	"
Paratyphus-Impfstoff	8.840	"
Pertussis-Yatren-Vaccin	14.470	"
Pest-Vaccin	1.700	"
Scharlach-Schutzimpfstoff	2.142	"
Strepto-Yatren	85.525	"
Streptokokken-Vaccine	0.389	"
Tetanus-Anatoxin	8.809	"
Tetra-Vaccine	3.062	"
Typhus-Impfstoff	8.961	"
Typhus-Yatren-Vaccin	21.828	"
Typhus-Paratyphus-Impfstoff	3.888	"
Typhus-Paratyphus-Yatren-Vaccin	0.249	"

Tuberkulin-Gruppe

Hauttuberkulin v.Pirquet	0.500	"
Alt-Tuberkulin Koch	5.065	"
Albumosefreies Tuberkulin	0.303	"
Tricho-Yatren	1.434	"
Ophthalmico-Tuberkulin	1.966	"
Perlsucht-Tuberkulin	0.818	"
Tuberkulin nach Wolff-Eisner	0.008	"
Tuberkulin-Lösungen		
zur Diagnose nach Koch	0.023	"
" " " Löwenstein	0.001	"
" " " Römer	0.001	"
Neutuberkulin	0.023	"
Alt-Tuberkulin Koch	0.597	"

APPENDIX IX (continued)

Sterile-Tub.Lösungen	0.223	Liter
Ambozeptor	3.583	"
Extrakte	223.515	"
Venülen 8 ccm	68.849	Stück
" 8 " spezial	3.165	"
" 15 "	1.655	"
" n.Widal	2.470	"
Agglutinierende Sera	2.728	Liter
Test-Sera f.d.Blutgruppen-Bestimmung	0.101	"
Tuberkulose-Extrakt n.Witebsky	0.010	"
Yatren-Casein stark	27.000	"
Yatren-Lösung	1220.475	"

APPENDIX X

MONATLICHE KAPAZITÄT

1.)

Seren:

Diphtherieserum vom Pferd	circa	1500	Liter
Tetanusserum "	"	2000	"
Fränkelserum "	"	2100	"
Novyserum "	"	550	"
Pararauschbrandserum "	"	580	"
Rotlaufserum "	"	2400	"
Coli-Kälberruhr-Serum "	"	60	"
Paratyphus-equi-Serum "	"	50	"
Pyosepticumserum "	"	160	"
Streptokokken-Druse-Serum v.Pf.	"	110	"
Scharlachserum v. Pferd	"	100	"
Botulismusserum v.Pf.	"	30	"
Coliserum v.Pf.	"	340	"
Puerperalfieberserum v.Pf.	"	15	"
Staphylokokkenserum v.Pf.	"	8	"
Streptokokkenserum v.Pf.	"	80	"
Pasteurellaserum v.Pf.	"	200	"
Tularämieserum v.Pf.	"	10	"
Diphtherieserum vom Kind	"	150	"
Tetanusserum vom Rind	"	120	"
Coli-Kälberruhr-Serum v.Rind	"	80	"
Tierstreptokokkenserum v.Rind	"	20	"
Diphtherieserum vom Hammel	"	150	"
Boviserin	"	300	"
Equiserin	"	150	"

2.)

Impfstoffe für die Human-Medizin:

Antipyogen	circa	5	Liter
Cholera-Impfstoff	"	200	"
Diphtherie-Impfstoff			
an Aluminiumhydroxyd adsorbiertes			
Diphtherieformoltoxoid	"	1000	"
Dysenterie-Mischimpfstoff	"	1000	"
Vaccine z.Behandlg.d.weibl.Adnexitis"	"	100	"
Fleckfieberimpfstoff vom Hühnerei		500	"
Fleckfieberimpfstoff aus Lungen		250	"
Fleckfieberimpfstoff aus Läusen		5	"
Pestimpfstoff		50	"
Vaccine z.Behandlg.d.Aknevulgaris		50	"
Scharlach-Adsorbat-Impfstoff		1000	"
Tetanus-Adsorbat-Impfstoff		1000	"
Typhus-Impfstoff		1000	"
Typhus-Paratyphus-A-B-Impfstoff		5000	"

APPENDIX X (continued)

3.)

Yatren-Impstoffe:

Gonokokken-Vaccine	250	Liter
Neuro-Yatren	250	"
Staphylo-Yatren	250	"
Strepto-Yatren	250	"
Yatren-Vaccine	250	"

4.)

Impfstoffe für die Veterinär-Medizin:

Avirulente Abortus-Bang-Galle-Kultur

circa 400 Liter

Diplokokken-Formolvaccine	"	20	"
Geflügel-Cholera-Impfstoff	"	10	"
Fohlenlähme-Vaccine	"	30	"
Milzbrand-Adsorbat-Impfstoff	"	50	"
Rauschbrandformol-Kultur	"	50	"
Rauschbrandpararauschbrandformol- Kultur	"	50	"
Schweinerotlaufkulturen	"	400	"
Yatren-Vaccine g.d. Abortus-Bang d.Rindes	"	500	"
Yatren-Vaccine g.d. Paratyphus Abort d.Stuten	"	500	"
Yatren-Vaccine E 104	"	500	"

5.)

Diagnostische Präparate, Serologische Reagenzien
und Präparate zur oralen Anwendung
können je nach Bedarf hergestellt werden.

Die vorstehend genannten Maximal-Kapazitäten
setzen natürlich eine gewisse Anlaufzeit voraus.

APPENDIX XI

Herrn Dr. Demnitz,
Herrn Oldenburg,
Frau Eltges,
Herrn Felger,
Herrn Döring,
E I Gladenbach.

LIEFERUNGEN AN DIE WEHRMACHT IM MONAT DEZEMBER 1944

Aggrecolin vom Pferd Fl.	50 ccm.....	30
	Fl. 100 ccm.....	20
Astibulin Fl.	50 ccm.....	22
	Fl. 100 ccm.....	124
	Fl. 250 ccm.....	22
Agglut. Sera Fl.	1 ccm.....	693
Ambozeptor Fl.	5 ccm.....	20
Antigene Fl.	5 ccm.....	44
	Fl. 10 ccm.....	30
	Fl. 20 ccm.....	1
Botulismus-Serum Amp.	50 ccm.....	500
Cobra-Serum, Amp.	10 ccm.....	30
Diphtherie-Serum v. Pfd.	400f. Amp. Nr. V, 7,5ccm	6.600
	Amp. VIID, 8 ccm,	3.550
	1000f. Amp. VIT, 6 ccm,	103
	Amp. XT, 10 ccm,	2.050
v. Rind	250f. Amp. IIR, 4 ccm,	3.350
	Amp. VIR, 12 ccm,	1.675
	500f. Amp. VIIIDR, 8ccm,	850
v. Hammel	250f. Amp. IIH, 4 ccm,	1.760
	500f. Amp. VIIIDH, 8ccm,	500
v. Rind	1000f. Amp. VITR, 6 ccm,	100
Diphtherie-Scharlach für Erwachsene	Amp. 1ccm	2.165
	Fl. 25ccm	1.750
Dysenterie-Mischimpfstoff	Fl. 50 ccm.....	20
Diplokokken-Serum	Fl. 50 ccm.....	20
Diphtherie-Impfstoff Alft	Amp. 0.5 ccm.....	1.850
	Amp. 1 ccm.....	1.600
	Flasche 25 ccm...	1.100
Dysenterie-Serum 400fach	Amp. 10 ccm Nr. I D	730
	Amp. 20 ccm Nr. II D	120
	Fl. 100 ccm.....	560
200 fach	Amp. 10 ccm Nr. I.	8
1000 fach	Amp. 10 ccm Nr. I T	300
Dysenterie-Polyfagin Kt.	2 X 2 ccm.....	5
Druse-Yatren-Vakzin	Fl. 100 ccm.....	25
	Fl. 250 ccm.....	8
Fleckfieberimpfstoff nachtr. geprüft	Fl. 10ccm	
	S.K.	18.250
	Fl. 25 ccm S.K.	7.100

APPENDIX XI (continued)

Gasoedem-Serum Amp. 20 ccm	50
Amp. 8 ccm S.K.	18.700
Gesamtlieferungszahl an den HSP = 760.800	
Gasoedem-Serum Amp. 50 ccm E.P.	5,000
Gesamtlieferungszahl an den HSP = 196.130	
Meningokokken-Serum Amp. 10 ccm S.K.	1.230
Amp. 20 ccm S.K.	1.105
Peritonitis-Serum Fl. 20 ccm S.K.	14.200
Gesamtlieferungszahl an den HSP = 576.720 Ersatz	4
Pneumokokken-Serum Nr. II 20 ccm S.K.	275
Reodern 6/l ccm schwach und stark 2 und 3 ...	5
Rotlauf-Serum human Amp. 10 ccm	200
Amp. 20 ccm	100
Scharlach-Serum Amp. 10 ccm Nr. I S.K.	<u>3.450</u>
Uebertrag Bl. II = Lol.	964
Uebertrag.....	101.964
Scharlach-Serum Amp. 10 ccm Nr. I C, S.K. ...	910
Scharlach- Adsorbat-Impfstoff Fl. 25 ccm S.K.	500
Schlangen- Serum Amp. 10 ccm S.K.	200
Pockenlympe f. 100 Impfg	5
Schweinerotlauf- Serum Fl. 100 ccm	10
Fl.1000 ccm	10
Schweinerotlauf-Kulturen Amp. 5 ccm	150
Amp. 10 ccm	100
Schweinepest- Serum Fl. 1000 ccm	5
Streptoserin Amp. 20 ccm	50
Staphylokokken-Serum 100 fach Amp. 10 ccm ...	100
200 fach Amp. 10 ccm ...	100
Tetanus-Serum 600 fach vom Pferd Amp. Nr. I .	257.000
(Mbg.224.000, Wien = 33.000.) Ersatz	273
Gesamtlieferungszahl an den HSP = 8.691.000 .	
Tetanus-Serum 600f. v.Pfd. Fl. 25 ccm S.K. ..	21.000
(Mbg.11.000, Wien 10.000) Ersatz	301
Gesamtlieferungszahl an den HSP = 1.882.961 .	
Tetanus-Serum 300f. vom Rind Amp. 10ccm(v.Rd.)	1.880
600f. " " Amp. 5 ccm	3.900
1000f. " " Amp. 10 ccm	1.490
1000f. " Pferd Amp. 10 ccm	1.950
Testsera f.d.Bl.B. Amp. 1 ccm A	1.575
Amp. 1 ccm B	1.895
Amp. 1 ccm O	1.500
Tularämie- Antigen Amp. 1 ccm f.d.H.D.	6
Tuberkulose- Antigen Fl. 25 ccm	10
Typhus-Paratyphus-Impfstoff T.B. Fl. 50 ccm .	1.620

APPENDIX XI (continued)

Venülen in V.P. = 20 o.V.P. = 40	60
(Venülen siehe auch unten)	
Gesamtalblieferung im Monat Dezember 1944:	<u>398.564</u>

Venülen - Lieferungen im Monat Dezember 1944.

Es wurden geliefert:

An die Wehrmacht: in Vers. Packg. 20 ohne V.P.	= 40 = 50
Für das Inland: " " " 547 " V.P.	2390 = 2937
Für Polio-Und Tests. " V.P.	565 = 565
Für Behring Institut: " " " 2.483	2.483
Gesamt-Venülen-Lieferung im Dezember 1944:	<u>6.045</u>

Marbach, den 30. 12. 1944

Versand Hg.

APPENDIX XII

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1



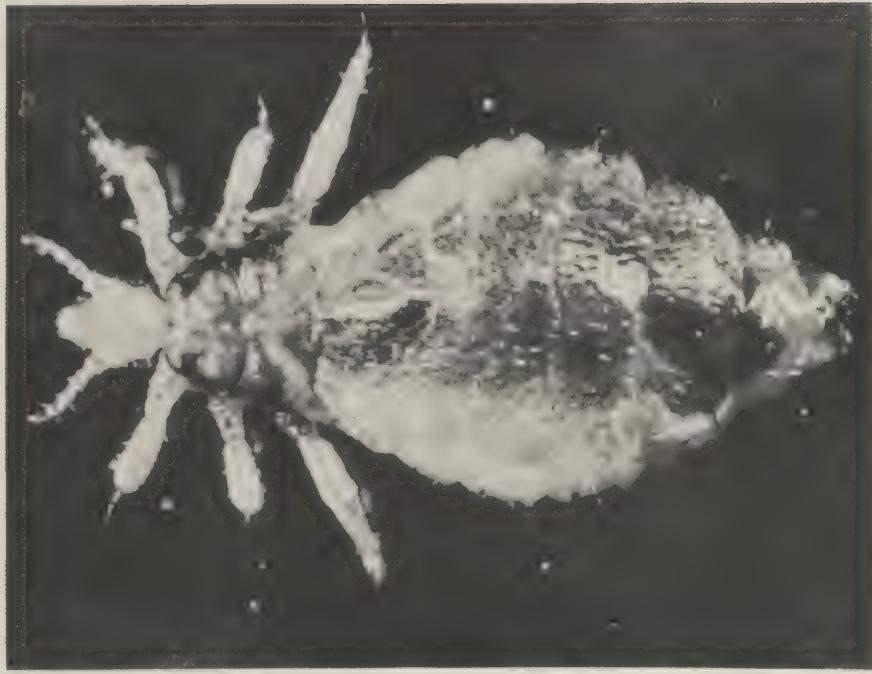
2



3



4



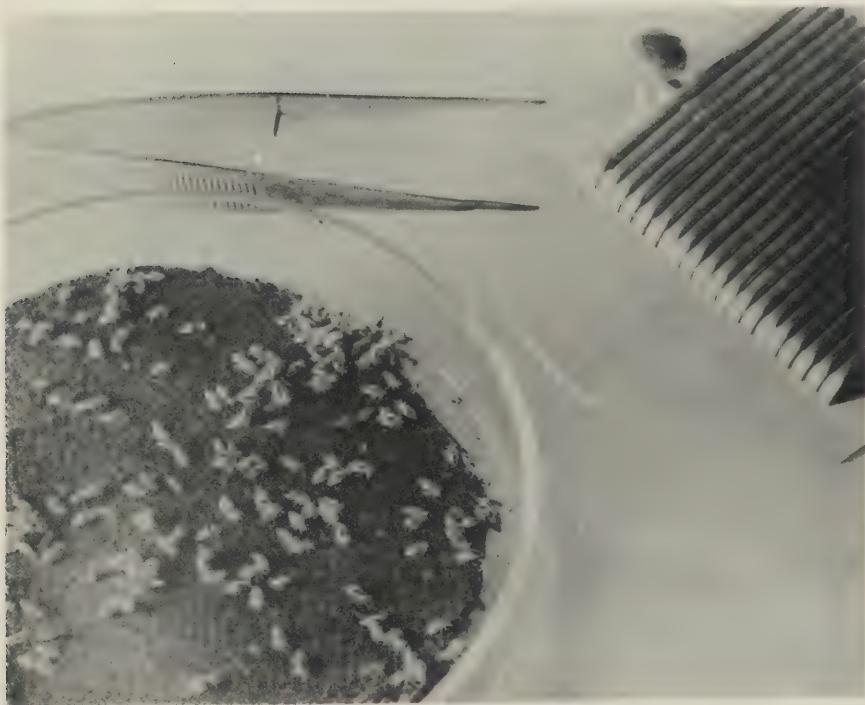
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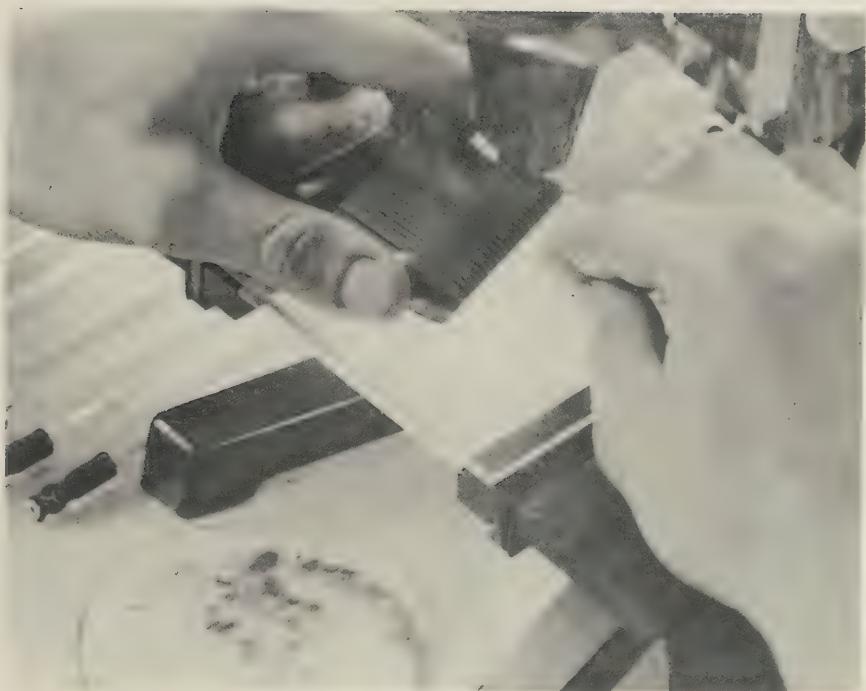
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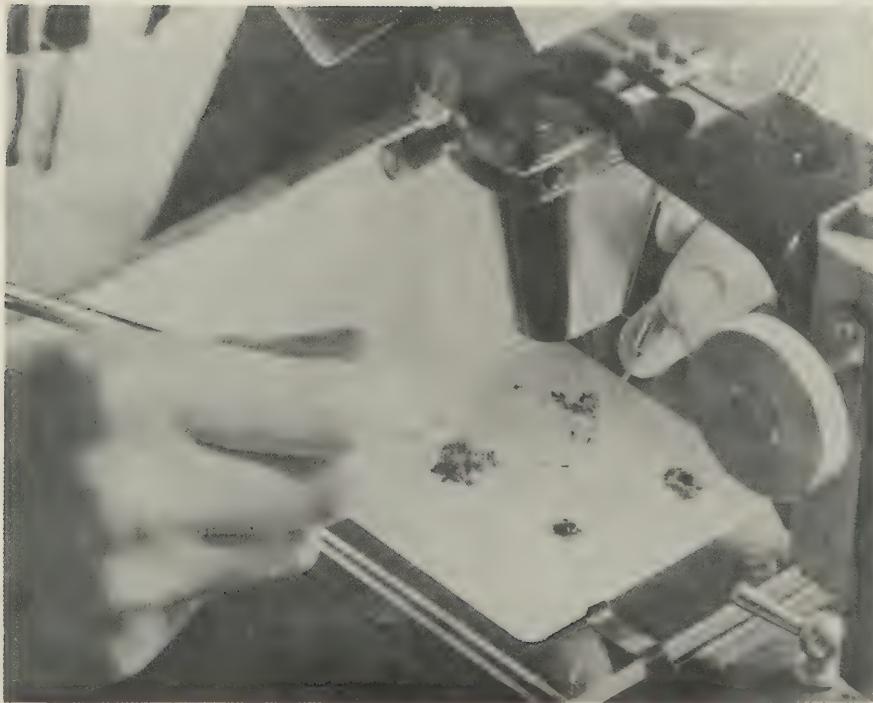
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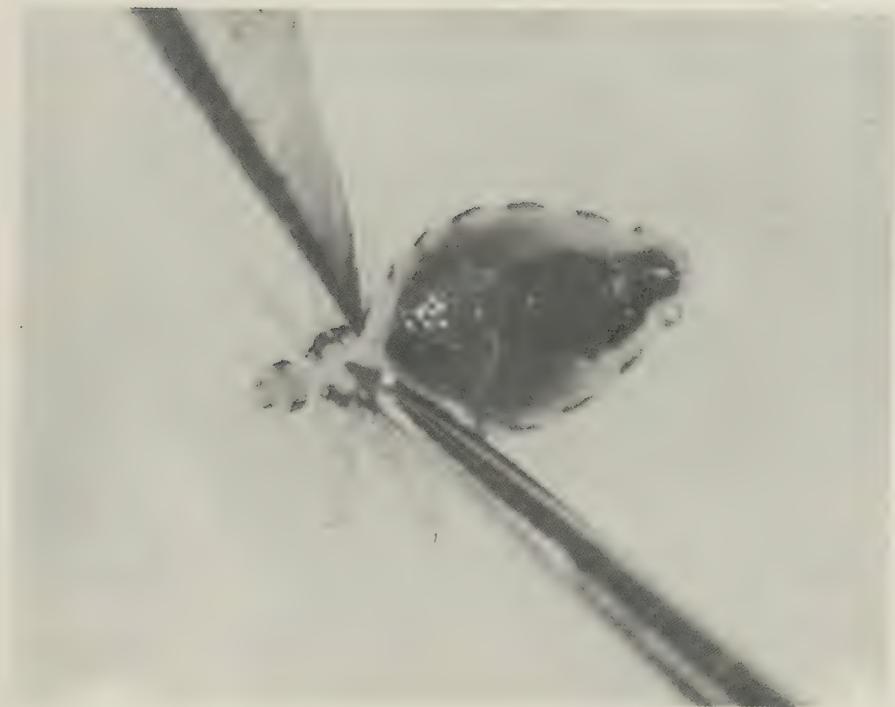
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